Data Storage

Compressing Images

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Compressing Images

Images

- ✓ Bitmap were studied in previous modules
- ✓ They can further be optimized to store images

Compressing Images

GIF

- ✓ Graphic Interchange Format
- ✓ Pronounced as “Giff” of “Jiff”
- ✓ Developed by CompuServe
- ✓ It reduces the number of colors to 256 that can be assigned to all combinations of RGB.

Compressing Images

GIF

- ✓ 3 bytes to 1 byte.
- ✓ Lossy technique.
- ✓ GIF further applies LZE (Adaptive dictionary system)

Compressing Images

GIF: Pros and cons

- ✓ One of the color in GIF is transparent which makes it a choice for simple animations
- ✓ However, it is unreliable for higher precision systems like photography.

Compressing Images

JPEG

- ✓ Standard developed by Joint Photographic Expert Group.
- ✓ Widely used for Photography industry as well
- ✓ Many options of lossless and lossy approaches

Compressing Images

JPEG

- ✓JPEG lossless does not achieve much compression
- ✓JPEG baseline standard (lossy method) is normally used.

Compressing Images

JPEG baseline

- ✓ Step 1: Take advantage of human eye's limitation.
- ✓ We are more sensitive to see changes in brightness than the change in color.
- ✓ It exploits chrominance values.

Compressing Images

JPEG baseline

- ✓ Step 2: divide the image in 8 * 8 pixel block.
- ✓ Discrete cosine transformation – forms another block that tell how the values are stored rather than the actual values.
- ✓ At least 10% reduction or upto 30% reduction

Summary

Compressing Images

- ✓ Bitmap to GIF
- ✓ GIF to JPEG
- ✓ Algorithm,
- ✓ Pros and cons